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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,486	04/09/2004	Yhean-Sen Lai	LAI 24	1420
47396	7590	07/12/2007	EXAMINER	
HITT GAINES, PC			TRINH, TAN H	
LSI Corporation			ART UNIT	PAPER NUMBER
PO BOX 832570			2618	
RICHARDSON, TX 75083			NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket@hittgaines.com

Office Action Summary

Application No.

10/821,486

Applicant(s)

LAI, YHEAN-SEN

Examiner

TAN TRINH

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7 and 15-20 is/are allowed.
- 6) ☒ Claim(s) 8-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 04-09-2004, the information disclosure statement has been considered by the examiner.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 8, 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaffe (U.S. Patent No. 6,985,093) in view of Chen (U.S. Pub No. 2005/0079850).

Regarding claim 8, Jaffe teaches a method of performing coarse carrier offset adjustment for application to a received satellite signal (see fig. 1 and 3, col. 5, lines 3-21, and col. 17, lines 8-17), comprising: analyzing, with respect to said received satellite signal (see col. 17, lines 25-50). In this case, the correlator examines the incoming signal. energies in bands on either side of a baseband as displaced by a coarse carrier offset (see col. 5, lines 4-21); changing the coarse carrier offset until the energies become substantially equal (see col. 5, lines 20-39). But Jaffe does not mention providing the coarse carrier offset to a digital down converter for the application.

However, Jaffe teaches the receiver DC offset is generated by non-ideal aspects of the analog radio frequency electronics. For example, imbalances in mixers that lower the frequency of the received signal will allow local oscillator signals to mix with themselves and generate DC voltages that are not responsive to the received signal. An analog received signal 302 is *provided* to joint detection block 304 and to summer 312. The received signal 302 includes DC offset interference from the transmitter and DC offset interference from the receiver due to down-conversion to base-band. Joint detection block 304 provides signal 308, which represents an estimate of the DC offset interference caused by the receiver. Joint detection block 304 also provides estimation 316 of the timing parameters of the received signal 302. For example, timing parameters could include chip and symbol boundaries in a CDMA signal. The receiver DC offset interference estimate 308 is subtracted from received signal 302 by summer 312 to produce signal 313, which is provided to timing/carrier offset correction block 314, which also receives timing parameter estimation 316 (see fig. 2, Carrier offset (F_c) 216, and fig. 3, carrier offset correction 314 and down converter 318, page 3, sections [0030-0031]). In this case, the Joint the detector for the carrier offset of the carriers offset correction 314 is providing the carrier offset correction to the down converter 318 for the application.

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of Jaffe with Chen, in order to provide estimation of the timing parameters of the received signal (see suggested by Chen on page 3, section [0031]).

Regarding claim 10, Chen teaches further comprising using a least means square algorithm to determine the coarse carrier. (see page 3, section [0030]).

Regarding claim 11, Jaffe teaches further comprising digitally sampling the received satellite signal (see fig. 1 and 20, the symbol sample 3127 and 3129, and col. 3, lines 53-62, and col. 16, lines 21-37, and col. 17, lines 8-24).

Regarding claim 12, Jaffe teaches the received satellite signal is quadrature modulated and the method further comprises analyzing both in-phase and quadrature components of the received satellite signal (see fig. 1 and 20, col. 16, lines 19-37).

Regarding claim 13 Chen teaches the application of the coarse carrier offset brings any remaining offset of the received satellite signal to within about ± 120 KHz (see fig. 2, pages 2-3, section [0029]). As to claim 13, the received satellite signal to within about 78 kHz. However, these skilled in the art would have appreciated that the above differences would not render the claims patentable over the applied references. The reasons are that the above differences would merely depend on how one would like to select particular values regarding the received satellite signal to within about 78 kHz to be suitable to the system requirements. Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify the applied references as claimed, so that the system of the applied references would be suitable to different system requirements.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaffe (U.S. Patent No. 6,985,093) in view of Chen (U.S. Pub No. 2005/0079850) further in view of Trivedi (U.S. Patent No. 6,697,439).

Regarding claim 9, Jaffe fails to teach the analyzing comprises using a Goertzel algorithm to analyze the energies.

However, Trivedi teaches the analyzing comprises using a Goertzel algorithm to analyze the energies (see col. 5, lines 5-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above combination of teaching of Jaffe and Chen with Trivedi, in order to provide quickly and with processing efficiency perform the spectral analysis at the band edges, once the direction of the frequency error is derived, the correct frequency can be acquired through a feedback loop employing various iterative correction techniques (see suggested by Trivedi on the abstract line 7-14).

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaffe (U.S. Patent No. 6,985,093) in view of Chen (U.S. Pub No. 2005/0079850) further in view of Naguleswaran (U.S. Pub . No. 2005/0174983).

Regarding claim 14, Chen teaches the CDMA and OFDM signal. But Chen or Jaffe fails to teaches the satellite receiver is carrier out the TDMA signal.

However, Naguleswaran the satellite receiver is carrier out the TDMA signal (see fig. 1, page 8, section [0122]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above combination of teaching of Jaffe and Chen with Naguleswaran, in order to provide suppressing interference is an effective receiver performance (see suggested by Naguleswaran on page 8, section [0122]).

Allowable Subject Matter

6. Claims 1-7 and 15-20 are allowed.

Reasons for allowance

7. The following is an examiner's statement of reasons for allowance:

Regarding independent claims 1 and 15, the references of Jaffe teaches a method of performing coarse carrier offset adjustment for application to a received satellite signal (see fig. 1 and 3, col. 5, lines 3-21, and col. 17, lines 8-17), comprising: analyzing, with respect to said received satellite signal (see col. 17, lines 25-50). However, Jaffe or Chen alone or in combination with other prior art of record, fail to disclose; A coarse carrier offset adapter for determining a coarse carrier offset for application to a received satellite signal, comprising: an *energy estimator* configured to analyze, with respect to said received satellite signal, energies in bands on either side of a base-band as displaced by a coarse carrier offset; and an *offset adapter coupled to said energy estimator* and configured to change said coarse carrier offset until said energies become substantially equal and provide said coarse carrier offset to a digital down converter for said application as specified in independent claims 1 and 15.

Conclusion

8. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(571) 273-8300, (for Technology Center 2600 only)

*Hand-delivered responses should be brought to the Customer Service Window (now located at the **Randolph Building, 401 Dulany Street, Alexandria, VA 22314**).*

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan Trinh whose telephone number is (571) 272-7888. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor, Anderson, Matthew D., can be reached at (571) 272-4177.

The fax phone number for the organization where this application or proceeding is assigned is **(571) 273-8300**.

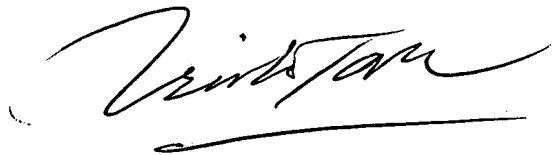
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Technology Center 2600 Customer Service Office** whose telephone number is **(703) 306-0377**.

Art Unit: 2618

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tan H. Trinh
Division 2618
June 27, 2007

PATENT EXAMINER
TRINH, TAN

A handwritten signature in dark ink, appearing to read 'Trinh Tan', with a horizontal line underneath.